

5 **Abstract**

10 An optical amplifier is proposed which has an optical waveguide structure)
through which signal light and pump light are propagated. The optical
waveguide structure has a core with a relatively high refractive index and a
clad with a relatively low refractive index, where at least said core exhibits a
nonlinear response of second or third order. In a result optical parametric
amplification of said signal light is achieved. The amplifier has separate
15 idler light filters for attenuating idler light, which is generated in the process
of optical parametric amplification, The position of the idler light filters can
be defined placed in said optical waveguide structure at a defined length
 L_{\max} .

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